

Asbestos Problems in East Asian Countries : Compared to Japanese Experiences

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1. Asian-typed Modernization and Overlapping Social Disaster

Since the beginning of the 21th century, about 50 countries has banned on the use of asbestos. Except Canada and Russia, the rest of developed (industrial) countries prohibit from using asbestos in principle. On the other hand, Asian countries without Japan and South Korea and Latin American countries, such as China, Thailand, India, and Brazil, drastically increase to use asbestos. As shown in Table 1, China consumed 30 % of total asbestos in the world and India also consumed 15 % of those. It tells Asian countries consume the half of all asbestos in the world. Asia should be the worst disaster region of the world if this situation is ignored in future. Thus, the Ritsumeikan University study group has started to investigate the situation of not only United States and European countries but also Asian countries. Through the study, asbestos problems in Asian countries do not fully open the data without Japan, South Korea and Taiwan, so it is difficult to do comparative study of Asian countries. So, I will talk about the asbestos' situation and problems in Asian countries from perspective of Japanese experiences.

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Table 1. Worldwide Asbestos Supply and Consumption Trends from 1930 to 2003
 (the amount of production + that of import) – that of export (unit: tons)

Nation/year	1930	1960	1970	1980	1990	2000	2003
China	315	81,288	172, 737,	150,000	185,748	382,315	491,954
India	1,847	23,652	49,792	96,892	118,964	145,030	192,033
Japan	11,193	92,483	319,473	398,887	292,701	85,440	23,437
South Korea	-	631	36,664	46,641	76,083	30,124	23,779
Thailand	-	6,433	21,272	58,756	116,652	109,600	132,983
U.S.	192, 454	643,462	668,129	358,708	32,456	1,134	4,634
England	23,217	163,019	149,895	93,526	15,731	268	22
France	-	83,385	152,357	125,549	63,571	-	-
Italy	6,942	73,332	132,358	180,529	62,407	40	-
Russia	38,332	453,385	680,589	1,470,000	2,151,800	449,239	429,020
Brazil	136	26,906	37,710	195,202	163,238	172,560	78,403
worldwide	388,541	2,178,681	3,543,889	4,728,619	3,963,873	2,035,150	2,108,943

Source: U.S., Geological Survey, Worldwide Asbestos Supply and Consumption Trends from 1900 to 2003

First of all, I would like to begin to talk about asbestos situation and problems in a part of East Asian countries and South-East Asian countries where there are different economic and political systems. That of Japan, South Korea and Taiwan is Capitalism. That of China and Vietnam is socialism of one-party rule, but recently shifts to global capitalist market so we can say that they has nation-state capitalist system. Thailand also begins to enter global capitalist economy but it is ruled by imperial reign. Each country has each religion, life-style, and culture, so we should not discuss all at the same level because there will easily lead to mistakes. While, different from United States and Europe, these countries have a common point like Asian-typed modernization. United States and Europe took 300 years to modernize after civil revolution and industrial revolution, while Japan did only for 100 years. As soon as after World War II when other Asian countries were released from colony of United States, European countries, and Japan, they started to modernize their countries, that is, they are developing their economy with industrialization and urbanization at the same time. Such an Asian-typed modernization made their economic power grow rapidly, but they face the typical disaster which developed countries had experienced in the period of industrial revolution for a long term and the modern disaster at the same time for a short period. Therefore, the factors are so complicated that they cannot take measures against asbestos easily.

Such an Asian-typed modernization was started from Japan, and in the process of the modernization, pollution and workers' disaster explosively occurred.

Concurrently with United States, the Law and administrative organization (institution) for environmental protection was established by public opinion and movement against pollution, because democracy, fundamental human rights, civil freedom were guaranteed through the reform after the war although they were imperfect. Also, pollution problems were solved in trail. In the 1980s, new governments of South Korea and Taiwan overthrew their military-ruled administrations and then introduced democracy. After that, their environmental policies have advanced due to big wave of environmental protection movement. However, it cannot be said that other Asian countries guarantee democracy and the freedom of civil society. Such various political, economical, and social systems reflect on the characteristics of asbestos' problems.

2. Asbestos problems in East Asian countries

Table 2 shows the trend of asbestos consumption in Asian countries after year 2000. The “Kubota Shock” accident which took place in Japan 2005 gave impact on South Korea and Taiwan. These countries started to regulate using asbestos by the pressure of public opinion. The South Korea government has totally banned on the use of asbestos since 2009. The Taiwan government regulates the limited amount of using asbestos and plans to prohibit from using asbestos totally within next five years. The rest of countries, however, use mainly chrysotile and no plan to ban on it, so it is continue to expand the use of chrysotile (asbestos) in Asia.

Table 2. The Trend of Asbestos' Consumption in Asian Countries (Unit:tons)

Country	2000	2001	2002	2003	2004	2005	2006	2007	合計
China	382,315	394,324	378,457	492,000	537,000	515,000	541,000	626,000	3,866,096
India	145,030	150,161	168,292	192,000	190,000	255,000	240,000	302,000	1,642,483
Thailand	109,600	103,320	109,684	133,000	166,000	176,000	141,000	86,500	1,025,104
Vietnam	44,150	24,905	27,885	39,400	58,300	103,000	61,200	64,400	947,940
Indonesia	42,877	38,562	34,618	32,300	51,000	23,300	36,300	46,200	305,157
Japan	85,440	78,247	44,521	23,400	8,180	-31	-875	58	238,940
South Korea	30,124	25,044	18,035	23,800	14,600	6,480	4,700	1,100	123,883
Malaysia	17,711	6,166	10,607	13,400	8,350	-11,800	10,300	9,390	64,124
Philippine	2,631	3,023	2,738	2,450	3,580	1,490	2,570	2,180	20,662
Bangladesh	1,445	1,266	1,467	2,800	2,000	2,610	2,610	2,740	16,938
North Korea	848	750	893	1,230	1,880	1,710	2,240	2,060	11,611
Hong Kong	1,135	3,400	970	2	5,310	(blank)	29	1	10,847
Singapore	2,990	415	less than 0.5t	268	3	-3,180	1,400	40	1,936

Source : U.S. Geological Survey, Worldwide Asbestos Supply and Consumption Trends from 1900 through 2003, 2006.

U.S. Geological Survey, World Asbestos Consumption From 2003 through 2007, 2009.

In South Korea, the raw materials have been imported and processed since after the 1970s although there were 16 asbestos mines. In fiscal year 1993, there are 1,476 employees and 118 factories related asbestos. 82% of total asbestos was used for building materials, 11% of that was for frictional materials, 5% of that was for textiles, and 2% was for others. 90% of the total consumption of asbestos was chrysotile because crocidolite has been prohibited from importing since 1981. One of main factories to use asbestos is Japanese company, Nichias's subsidiary company, Daichi Kagaku (the first chemistry). It tells that Japan exports pollution to other countries. After the regulation was strict in the second half of the 1990s, the factory moved to Indonesia. The whole picture of the damage by asbestos is not identified yet. Although the South Korean EPA announced that the number of the dead by mesothelioma reached 104, it is estimated that the number would amount to around 500 people. In South Korea, there is Compensation Law for workers' accident disaster, under which people who work at asbestos related industries for more than 5 years can take preventive diagnosis (from a doctor). Environmental disaster of inhabitants around factories becomes a serious problem and then the Relief Law for asbestos' victim similar to Japanese one was established in 2010. There are a few trails but still quite small number. Asbestos was used for 1/3 of total buildings in South Korea, so when those buildings are pulled down, to prevent from exposing to asbestos would be a critical issue in future.

In Taiwan, asbestos particles from factories were very serious problem. Shipbreaking also caused the damage by asbestos. In 1989, the government classified asbestos into a specified material in order to regulate. In July, 2009, the government prohibit from using asbestos except for educational study, material of architectural roof, filling materials for crack, and brake-linings. Until the 1980s, Japanese companies, such as Nichias, provided their capital partly for those factories using asbestos and then now they withdraw from Taiwan. Today, the government permits 35 companies to use asbestos, of which 20 companies are in operation. The amount of discharging asbestos particles is set to 1 f/cc under the regulation, which is so high that it will be revised to set 0.15 f/cc in near future. As a result of that the regulation becomes strictly, many factories are moving to China and South East Asian countries. The government reported that the number of Mesothelioma was 423 from 1979 to 2005, of which 12 cases were covered from compensation for industrial accidents. This compensation cannot be accepted after retirement. So, in some cases, people cannot receive the compensation, because the damage of asbestos is usually appeared spending for a long time after

exposure. In the case of that people can receive the compensation, there comes up to a problem that victims receive compensation from which deduct their retirement allowance. There are no reports about environmental disaster and also no Relief Law in Taiwan.

In China, there are 50 chrysotile mines and the total amount of those deposit is 90 million (90,610,000) tons. 90% of these areas is located in living space of western minorities. In fiscal year 2008, these mines produced 410 thousand tons, 220 thousand tons were imported, and in total 630 thousand tons were consumed. China is the most amount consumption of asbestos in the world. In 2002, Chinese government prohibited from using crocidolite. The half of total chrysotile is used for asbestos' cement, 20 % is for friction materials, 10% is for insulation and lagging materials. Although the government prohibited from using chrysotile for the automobile brake-linings in 2002 due to international relations, brake-linings using chrysotile still can be seen. The government announces that chrysotile will be safe when its management is perfect. The exposure level of asbestos at work place is set to 1f/cc in new project and 2f/cc in the present project. Following data is little bit old, but I would like to tell it here. In fiscal year 1996, the number of workers at asbestos' mines was 24 thousand people, and workers at asbestos related places were 1 million people. According to Chinese Center for Disease Control and Prevention, more than 8,000 people (1% of total pneumoconiosis) suffered from pulmonary asbestosis and were officially acknowledged victim of workers' accident, 1,000 people (12 % of total pneumoconiosis) already died, 15 % of workers using asbestos has pleural thickening, and 50% of that had pulmonary asbestosis. Even though there are suffers from mesothelioma in some parts, any doctors do not diagnose their illness as an occupational disease. Moreover, there is no report of environmental disaster. Chinese government expresses its opinion that there is no anxious about exposing to asbestos when buildings are pulled down because in the country few spraying asbestos is used. Observing production becomes strictly in China, but it cannot cover all, because more than 90% of all companies are small and medium-sized enterprises, and workers from rural area, where the regulation does not function enough, reaches to 200 million people. The extreme data shows that the density level of the asbestos at mines is 6f/cc and that at its factory is 5f/cc, very high density level. Department of Occupational Safety and Health Supervision explained that 276 factories in a city were investigated in 2005 and only 20 factories of those followed the level of regulations. The reason why the government does not prohibit from using asbestos is that a number of unemployment will be created if the production

stops, especially in Western area of China where there are many mines, it would damage its regional economy and finance seriously and makes the price of alternative production high as many as 15 to 40 times. As a result, its economic losses would be big. However, huge damage by not only workers' accident but only environmental disaster would appear if the investigation goes forward in future. Today, there is compensation for workers' accident but there are no Relief Law and no trial.

In the case of Indonesia, the government is behind to take measures for asbestos although the damage seems to be caused by using it. As mentioned before, the government understands that it is difficult to stop using asbestos due to the creation of unemployment.

3. The situation of disaster caused by asbestos and problems in Japan

In June 2005, three mesothelioma-afflicted residents of the community around Kubota Corporation's Amagasaki Plant with support group took Kubota to the court. This unveiled the damage caused by asbestos over more than 100 years. The Kubota has started to give a relief treated as the compensation for industrial disease (25 million to 46 million yen for compensation) to sufferers from pollution (environmental pollution). In February, 2006, the Japanese government also constituted the Asbestos' Disaster Relief Act and began to relief for the victim who was damaged by environmental pollution and who did not apply for compensation for industrial disease until now.

(1) Serious damage

After the Japanese government and enterprises dealt with the damage by asbestos, it is proved that the serious damage has already started to appear although it is hard to grasp a whole picture of the damage because of no epidemiology investigation, which is the fundamental research of damage. As shown in Table 3, the number of the officially acknowledged victim of asbestos was 203 until 1994 and also counted only 654 for next 10 years (from 1995 to 2004). In 2005 when "Kubota Shock" occurred, however, 721 people were acknowledged as the victim of workers' accidents, more than 10 times as many as so far. In 2006, the number amounted to 1,784 people, 30 times as many. From 2005 to 2009, the number of the acknowledged victims of workers' accident amounted to 5,582 (2,484 people for lung cancer and 3,098 people for mesothelioma), that of victim covered by seaman's insurance reached 59, and that

of patients covered by workers' accident got to 5,641. From 2006 to 2009, the number of additional acknowledged victims by new law came up to 6,205 (975 people for lung cancer, 5,230 for mesothelioma). So far, the total number of acknowledged victim by asbestos damage have reached to 1.2 thousand (11,846) people.

Table 3. Japanese Trends of the compensation and relief for Mesothlioma and pulmonary asbestosis cancer

	~1994	~2004	2005	2006	2007	2008	2009	total
The estimated number of the dead	11,055	21,039	2,733	3,150	3,204	3,510	3,468	48,159
Insurance for workers' accident	203	653	715	1,784	1,002	1,062	1,019	6,438
Insurance for seamen		1	6	23	12	9	9	60
New Relief Law for the status of limitation				842	95	112	95	1,144
New Relief Law (for the dead)				1,477	292	463	737	2,969
New Relief Law (for alive)				632	453	528	479	479
Total of acknowledged victims	203	654	721	4,758	1,854	2,174	2,339	12,703

Source: "Information of labor safety center" 2009, vol. January/February, p74

The number of the acknowledged sufferers from lung cancer by pulmonary asbestosis is less than other countries, but there are 2,000 to 3,000 deceased people per year. In the case of Kubota, until March, 2010, the number of the victim caused by asbestos was 391, and the number of the dead was 334 (144 employees who already died, 26 victims under medical treatment, 190 inhabitants living factory who already died, and 31 cases who recuperate). The Kubota paid compensation treated as same as industrial accidents' case to 194 victims.

The Japanese government has prohibited from using asbestos since 2008, but the victim who had been exposed to asbestos from the 1950s to the 1970s comes to appear now. It can be said that the damage will exist through this century as long as there is disaster by destruction of buildings and earthquake occurs.

(2) All the enterprises as wrongdoers and sufferers across all regions

More than 80% of asbestos was used for building materials, the rest of that was used for 3,000 kinds of goods such as automobiles (cars), the brake-linings of locomotives, warships and vessels, energy institutions such as an electric power plant, and cosmetics. The damage is caused in the process of all economic activities, production, distribution, consumption, and disposition.

According to the governmental announcement, at the period of December, 2009, 4,189 enterprises notified that they had the victim from industrial disease by asbestos, of which 2,261 engaged in the manufacturing industry and remaining

1,928 engaged in a wide range from trade, service, and stage making industries.

The victim by asbestos exists ranging over Osaka, Hyogo, Tokyo, Kanagawa and nationwide.

(3) Mixed (Complex) Stock Disaster

The damage takes 15 to 50 years to develop a fatal disease, such as mesothelioma, lung cancer, and pulmonary asbestosis after one is exposed to asbestos. Such types of pollution is different from so far pollution that contaminants resulting from the process of economic activities cause pollution for a short period. The types of pollution caused by asbestos is not "Flow Pollution" that pollutant can disappear when a company stops to discharge or changes the production system but "Mixed (complex) Stock Pollution" that pollutant is accumulated in human body, goods, and waste for a long term and causes pollution and workers' disease.

So far asbestos is called "magic material," indispensable for any goods because of its disposition such as heat-resistance and fireproof materials. Although the Japanese government totally prohibited from using asbestos in 2006, there has been no social economic difficulties. After all, alternative materials are no problems to do economic activities. Thus, the reason why a large amount of asbestos had been used is not indispensable but cheaper than alternatives because these were produced by low-paid workers.

Due to the characteristic of "Mixed (complex) Stock Pollution" that it takes long time to appear the damage after exposing, ones that cause pollution should pay compensation following principles of PPP and EPR when the government or companies paid any compensation and took relief measures. However, there is a different problem of workers' disease and environmental pollution from so far ones. Like the case of Sen-nan region in Osaka, almost all enterprises gave up their business, and had no money and even no materials of evidence. In this case, no matter how companies' responsibility should be accused, who takes responsibility?

In the case of United States, companies, such as automobile, vessel, power plant, and trading companies, that products are made of a part of asbestos, are accused. However, the principle of EPR has not taken root in Japan, so we have to pursue the responsibility of the Japanese government.

(4) The responsibility of the government

The Japanese government disclosed the damage of pulmonary caused by asbestos in Sen-nan region in 1937 when it was before the war. After the war, the

government investigated the condition of the damage by asbestos. At least, there were evidences enough to implement basic measures in the 1970s. While, the measure for asbestos' damage was far behind even though it advanced to taking other pollution measures such as the Pollution's Health Damage Relief Act implemented at that time. In the 1980s, the Scandinavian countries already started to prohibit from using asbestos and disclosed its environmental damage inside and outside the country. Nevertheless, the Japanese Environmental Agency did not investigate the condition of the health damage of residents living around factories. The Agency just measured the amount of asbestos outside at a particular area and neglected to take its prevention measures. Like called PPM doctrine, the Agency and local governments depend on observational data than human health. This is fundamental failure of them.

It was obvious that the Japanese government did not take the prevention measures for asbestos' damage when Hanshin-Awaji Earthquake occurred in 1995. Actually, the government finally began to take measures for asbestos after more than 1 month from the earthquake. It just observed and measured the amount of asbestos in the air at parts of regions. According to the observational data, there were some polluted areas where the pollution level was over the standard of the regulation. However, there were no measures and implementations. So, the government did not issue a warning for construction workers to take safe way to remove asbestos when they engaged in pulling down building and for citizens to wear masks when they restored their town. Due to this, in 2008, there came to appear mesothelioma patients who engaged in the dismantling construction work. There is a possibility of appearing other patients in future.

Through "Trial of Sen-nan Asbestos," Osaka local court decided that the Japanese government was to be blame. But Osaka high court denied this decision and the accuser appeal the Supreme Court. Moreover, the trial on construction workers in metropolitan area charges with not only enterprises' responsibility for construction but also their collective responsibility for using and distributing asbestos. These trials will make clear that the legal responsibility would lie with the government and enterprises.

4. Coming measures for asbestos –international comparative study–

I would like to suggest some measures for asbestos matters in future.

(1) Epidemiologic investigation

We should do the epidemiology research about the workers engaging in asbestos-related factories and residents around there.

The reason why Minamata disease cannot be solved yet is that the investigation of residents' health around the polluted sea has never been done, as well as Asbestos' case. So, in order to take measures against asbestos hereafter, such investigation must be done at places where there are environmental sufferer living around asbestos-using factories, especially like Kubota and Nichias (Nihon Asbestos). Also, workers engaging in asbestos-using factories and residents living around there should be registered and their long-term diagnosis should be done. It is very hard to collect such data over half century, but we have to do that, because the problems will be not solved unless we do the epidemiologic investigation like the case of Minamata disease.

Enterprises which used asbestos have to disclose details why it started to use asbestos and the history of the production process. In order to make a whole picture clear, movement (campaign) for investigating the victim by asbestos need to be started. The problems are not apparent because the victim tend to be discriminated in a living area and society and are abandoned from relief. I expect that such a movement will be promoted by support groups helping them.

(2) The legal responsibility of enterprises and the government

A trial should make clear the regal responsibility of enterprises and the government, which should be referred under law.

In Japan and South Korea, enterprises and the government just give relief as their social responsibility at present, so this is not compensation. Like France, the government should make clear and recognize that legal responsibility rests with itself and then it should compensate and relief for sufferers from asbestos.

(3) The revision of the Asbestos Disaster Relief Act

Japanese Asbestos Disaster Relief Act has been defective, because it was established in haste. The amount of compensation prescribed by Asbestos Relief Law is one tenth as many as that of compensation for workers' accident. The responsibility of pollution (environmental damage) must be severer than that of workers' accident, so the amount of compensation paid by pollution's causers should be more than workers' disease case. In France, the number of designed victim as pulmonary asbestosis cancer is more than that of mesothelioma. In

Japan, on the other hands, that of pulmonary asbestosis cancer is very few because the factor of the disease is diagnosed as smoking (cigarette). Even though there are few medical specialists in this field in Japan, we should identify the illness related to factor caused by asbestos such pulmonary asbestosis cancer. In addition, I suppose that the Relief Act in South Korea could have the same problems as Japan because it is very similar.

(4) Relief Institution of Asian countries in Future

Internationally, there are two relief institutions, one is relief by trial like United States, and the other is by the asbestos' victim foundation (Fond d'indemnisation de l'amiante (FIVA)) like France.

Table 4. The average of compensation by trails in United States. (Unit:US\$)

Asbestosis (slight)	100,000
(severe)	400,000
Lung cancer (smoker)	600,000
(ex-smoker)	975,000
(non-smoker)	1,100,000
Mesothelioma	1,100,000

Source: Antonio Sato, Gael Salazar eds, "Asbestos" (2009,N.Y.)

In United States' case, the government does not have a conception that the government should take its legal responsibility and paid compensation for victims. People also have a conception that one should take self-responsibility for his/her action or behavior, so the victim claims for their damages in trial. All the companies which produce goods made parts of asbestos could be the accused. According to the Land Research Institution's report 2002, there were 60 thousands trials, 600 thousands accusers, 6,000 accused enterprises raging from 83 different types of industries, and US\$54 billion paid as compensation. As shown in Table 4, the amount of compensation for mesothelioma was \$ 1.1 million. The settlement by trial seems to be appropriate in the case of following market principle, but there is a problem that victims can get only 40% to 50% of their received compensation, because the rest of that is paid for trial costs to lawyers and the return of public temporal payment for the trial. This case remains a problem. As a result, people come to claim official relief measures recently.

In French case, the purpose of FIVA established in 2000 is to relief for all sufferers from asbestos. 90% of its financial resources comes from Social Security Foundation and the rest of that comes from the French government, that is, FIVA

is based on social insurance paid by labor and management. This does not act on PPP principle, but all companies and workers pay widely and lightly for “social risks.” This institution sets the wide-range target for sufferer from asbestos to receive compensation, as seen in Table 5. For example, the amount of compensation for mesothelioma is 11.5 thousand Euro. So far the number of total applicants has reached 4.7 thousand and also that of the acknowledged cases are more than that of lung cancer than that of mesothelioma. Although FIVA is very great institution as an official one, it has been accused by 1,000 cases. It is because the amount of compensation is very small and also victims tend to go to trial in order to make clear the legal responsibility of enterprises. In the case of administrative relief, the legal responsibilities of enterprises as wrongdoer usually are not accused.

Table 5. the amount of Compensation of FIVA (average amount, Unit: Euro)

Disease	Victim alive	Victim died	Average
Asbestosis	22,662	74,544	35,427
Lung cancer	89,668	134,992	120,131
Pleural thickening	19,068	26,131	19,490
Mesothelioma	97,114	121,333	115,360
Others	22,729	104,417	47,714
Pleural plaque	18,714	20,078	18,777
Total average	26,035	115,634	45,779

Source: Gakuto Takamura. “The situation and problems of asbestos compensation foundation in France”, *Environment and Pollution*, Vol.38, No.4

In Hong Kong's case, promoted by the Hong Kong Workers' Health Centre, when a construction company contracts to build anything for more than HK\$1 million, it contributes 0.25% of that to the Pneumoconiosis Compensation Fund. This helps victims.

In Japanese case, the Japanese government established the Relief Act quickly, following France. Since then it has helped sufferers who are not acknowledged as workers' disease. Compared to France, however, the legal responsibility of the government is not prescribed clearly under law. In addition, the target range of sufferers and the amount of compensation are limited under the Act. Moreover, the number of trials is very few as compared with United States.

(5) The safe pulling building down

A coming big problem is the scatter of asbestos in the air when buildings are

pulled down. In Japan, more than 5 million tons of asbestos are build up in buildings and it will come to the peak at the year 2020. For South Korea, also, the prevention of exposing to asbestos becomes a crucial problem. Moreover, some of workers who dealt with buildings collapsed by Hanshin-Awaji earthquake already died of mesothelioma. This is because any prevention measures were not taken when earthquake occurred. Until now, the government should investigate buildings accumulating asbestos and take any prevention measures against exposure to asbestos when earthquake occurs. Such a prevention measure is very important for Asian countries, especially China and Indonesia where earthquake happens frequently.

(6) Organizing interdisciplinary research groups

In Japan, almost all environmental researchers are not interested in damage by asbestos, because they regard it as workers' disease. Also, architects do not consider much about the risks of asbestos. However, asbestos problem cannot be solved as long as all fields of specialists do not work together. Thus, such interdisciplinary specialists group should be organized as soon as possible. Also, I hope that Asian international specialists group such as association and research center will exchange and be formed in near future.

(7) Stop to export pollution and responsibility

As mentioned above, when the regulation in a developed country becomes strict, the dangerous factory moves to a developing country, such as from Japan to South Korea and Taiwan, from South Korea to Indonesia, and from Taiwan to China. Such an exporting pollution has to be stopped. Like the case of Japanese vessels, developed countries' ships and vessels are broken down in Bangladesh and India. This is to export pollution. It causes industrial disaster even though this is just recycling for developing countries to keep resources. This is a severe problem for Asian countries to prevent and stop disaster caused by asbestos internationally.

(8) Toward non-asbestos society

A lot of Asian countries and community usually use a large amount of chrysotile for safety, but the damage by using chrysotile is obvious. If they use alternative materials, there will be no economic losses. Therefore, using all kinds of asbestos including chrysotile should be prohibited. In order to do so, Canadian chrysotile which Asian countries use because of safety has to be banned.

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